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Catalytic conversion of organic matter in a carbonate reservoir

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Abstract

© SGEM2018. The work is dedicated to solving a scientific problem related to the effective use of steam-thermal methods for extracting hard-to-recover hydrocarbon resources from carbonate reservoir rocks using catalytically active metal compounds of variable valency. The work is aimed at studying the behavior of nanoheterogeneous catalysts based on Al, Ni, Mn compounds on an organic matter in the presence of a carbonate rock under conditions of steam heating effect. The experimental part of the project was carried out on a laboratory flow-through installation simulating the reservoir model. For the analysis of gaseous, liquid and carbonized substances, gas chromatography, adsorption-liquid chromatography, chromatography-mass spectroscopy, and X-ray analysis were used. In the course of the work, the dependence of the rheological parameters of the organic matter and the filtration-capacitance properties of the carbonate rock on the temperature, pressure and concentration of nanoheterogeneous catalytic systems was found, thermobaric dependences of the variation of the individual hydrocarbon, component, and structural-group composition of organic matter under steam-thermal methods of action on the formation were established.

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Keywords

Catalytic conversion, Nanoheterogeneous catalytic systems, Steam-thermal methods

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